

Widefield and two-photon calcium imaging

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An abbreviated version of this protocol was published in eLIFE in Sep 2022

Neural signatures of auditory hypersensitivity following acoustic trauma

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Detailed protocol

We make a craniotomy so it begins about 0.25-0.5 mm anterior to lambda (the craniotomy is 3 mm diameter). This should capture A1/AAF, which begin about 1.5 mm anterior to lambda. The craniotomy is also centered on the temporal ridge (medial-lateral axis).

There are no stereotactic coordinates for primary auditory cortex. This location needs to be determined physiologically, which we do here by playing tones of different frequencies/intensities during widefield epifluorescence calcium imaging and calculating the frequency tuning across the space of our craniotomy.

For further details, please see:

- Romero, et al. Cerebral Cortex 2020. <https://doi.org/10.1093/cercor/bhz190>
- Narayanan, et al. Cerebral Cortex 2023. <https://doi.org/10.1093/cercor/bhac275>

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

- McGill, M. (2023). Widefield and two-photon calcium imaging. Bio-protocol Preprint. bio-protocol.org/prep2183.
- McGill, M., Hight, A. E., Watanabe, Y. L., Parthasarathy, A., Cai, D., Clayton, K., Hancock, K. E., Takesian, A., Kujawa, S. G. and Polley, D. B. (2022). Neural signatures of auditory hypersensitivity following acoustic trauma. eLIFE. DOI: [10.7554/eLife.80015](https://doi.org/10.7554/eLife.80015)

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